

ABSTRACT

A maximum sensitivity optical scanning system is disclosed. It finds use in a variety of applications, including the reading of biopolymeric arrays. It operates by scanning sample at a setting selected to result in signal saturation for some, but not all available data. Subsequent scans of the same area are taken at lower sensitivity settings (in terms of detector gain and/or excitation light source gain or attenuation) and data from at least the previously saturated regions is obtained. If system sensitivity is set too low to produce useful results, optional features may adjust sensitivity upward and follow with an increased sensitivity scan as a remedial measure. Full signal sensitivity is better preserved as most needed in taking data for the weakest signals first with the high-level scan. Data for sample producing stronger signals that can better tolerate photobleaching is then taken in one way or another.